IN THE SPECIFICATION:

Amend paragraph 20 as follows:

Referring to Fig. 1, the major components of a preferred magnetic resonance imaging (MRI) system 10 incorporating the present invention are shown. The operation of the system is controlled from an operator console 12 which includes a keyboard or other input device 13, a control panel 14, and a display 16. The console 12 communicates through a link 18 with a separate computer system 20 that enables an operator to control the production and display of images on the ~~screen~~ display 16. The computer system 20 includes a number of modules which communicate with each other through a backplane 20a. These include an image processor module 22, a CPU module 24 and a memory module 26, known in the art as a frame buffer for storing image data arrays. The computer system 20 is linked to disk storage 28 and tape drive 30 for storage of image data and programs, and communicates with a separate system control 32 through a high speed serial link 34. The input device 13 can include a mouse, joystick, keyboard, track ball, touch activated screen, light wand, voice control, or any similar or equivalent input device, and may be used for interactive geometry prescription.

Amend paragraphs 27 and 28 as follows:

Referring to Fig. 2, a data acquisition and processing technique, in accordance with the present invention, is shown schematically. Fig. 2 illustrates one embodiment of the present invention for acquiring data. In this embodiment, the table is step-wise incremented 15 times with data acquisitions 106 in 16 table positions along the desired FOV. Each of the table increments are of equal distance Δ_z. A patient 100 is positioned on a movable table 102, which moves fore and aft 104 within the MRI scanner 10 with respect to the magnet and the optimal imaging area 108 of the MRI scanner. The desired FOV 110 is substantially larger than the optimal imaging area 108, which is generally larger than a selected slab thickness 112. As previously discussed, the table motion in this simplified example is in the z direction. Magnetic field gradient waveforms are designed to encode four k_x-k_y subsets ($N_{wf} = 4$) with a total of 16 table positions and data acquisition sets 106. At each table position 1-16, there are four data acquisitions

encoding four k_z levels that result in four z- pixels in the excited slab after Fourier transformation in the z direction ($N_z = 4$). N_z and the retained slab thickness may be reduced slightly after acquisition if edge slices are dropped from each $z\text{-}k_x\text{-}k_y$ data set to minimize the effect of imperfections in the slab profile. It is understood that the optimal imaging area 108 is defined by the physical characteristics of the MRI system 10. It is preferred to define a volume of interest, or slab, 1142 to be within the optimal imaging area 108.

It is noted that when $N_z = N_{wf}$, each of the table increments throughout the desired FOV 110 are of equal distance. Accordingly, any of the aforementioned parameters can be adjusted as desired. That is, the slab thickness 1124 may be made larger or smaller, or the number of table positions and data acquisition sets 106 can be increased or decreased, above or below the 16 that are shown. The minimum number of table positions desired to reconstruct an image is equal to the number of waveform subsets, N_{wf}. Additionally, the number of z-pixels, N_z, retained in each excited slab, as well as the number of $k_x\text{-}k_y$ subsets can be modified as desired. Preferably however, N_z is kept greater than or equal to N_{wf}. One such modification will be described with reference to Fig. 3.